

Title (en)

GaN semiconductor substrate and semiconductor device manufactured by epitaxial growth on the GaN semiconductor substrate

Title (de)

GaN-Substrat und Halbleitervorrichtung hergestellt durch epitaktisches Wachstum auf das GaN-Substrat

Title (fr)

Substrat semiconducteur en GaN et dispositif semiconducteur fabriqué par croissance épitaxiale sur le substrat semiconducteur en GaN

Publication

EP 1630878 A3 20110504 (EN)

Application

EP 05255182 A 20050823

Priority

JP 2004244072 A 20040824

Abstract (en)

[origin: EP1630878A2] A semiconductor substrate encompasses a GaN substrate (11) and a single-crystal layer (12) formed of III-V nitride compound semiconductor epitaxially grown on the GaN substrate. The GaN substrate (11) has a surface orientation defined by an absolute value of an off-angle of the surface from {0001} plane towards <1-100> direction lying in a range of 0.12 degree to 0.35 degree and by an absolute value of an off-angle of the surface from {0001} plane towards <11-20> direction lying in a range of 0.00 degree to 0.06 degree.

IPC 8 full level

H01L 29/205 (2006.01); **C30B 25/18** (2006.01); **C30B 25/20** (2006.01); **C30B 29/40** (2006.01); **H01L 21/205** (2006.01); **H01L 33/00** (2010.01); **H01L 33/16** (2010.01); **H01L 33/32** (2010.01); **H01S 5/323** (2006.01)

CPC (source: EP KR US)

C30B 25/18 (2013.01 - EP US); **C30B 25/20** (2013.01 - EP US); **C30B 29/406** (2013.01 - EP US); **H01L 21/02389** (2013.01 - EP US); **H01L 21/02433** (2013.01 - EP US); **H01L 21/02458** (2013.01 - EP US); **H01L 21/02507** (2013.01 - EP US); **H01L 21/0254** (2013.01 - EP US); **H01L 21/02576** (2013.01 - EP US); **H01L 21/02584** (2013.01 - EP US); **H01L 21/0262** (2013.01 - EP US); **H01L 21/20** (2013.01 - KR); **H01L 29/045** (2013.01 - EP US); **H01L 29/205** (2013.01 - EP US); **H01L 29/7787** (2013.01 - EP US); **H01L 29/812** (2013.01 - EP US); **H01L 29/861** (2013.01 - EP US); **H01L 33/0075** (2013.01 - EP US); **H01L 33/16** (2013.01 - EP US); **H01L 33/32** (2013.01 - EP US); **H01L 29/2003** (2013.01 - EP US); **H01S 5/320275** (2019.07 - EP US); **H01S 5/32341** (2013.01 - EP US)

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Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

Designated extension state (EPC)

AL BA HR MK YU

DOCDB simple family (publication)

EP 1630878 A2 20060301; **EP 1630878 A3 20110504**; **EP 1630878 B1 20171018**; CN 100449800 C 20090107; CN 1741296 A 20060301; JP 2011124589 A 20110623; JP 2012064956 A 20120329; JP 2012114461 A 20120614; JP 2012209561 A 20121025; JP 2014027315 A 20140206; JP 4892103 B2 20120307; JP 5050123 B2 20121017; JP 5100900 B2 20121219; JP 5514260 B2 20140604; JP 5717825 B2 20150513; KR 100813756 B1 20080313; KR 20060050558 A 20060519; TW 200620423 A 20060616; TW I287256 B 20070921; US 2006043419 A1 20060302; US 2008113497 A1 20080515; US 7339255 B2 20080304; US 7531397 B2 20090512

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